

Short guide

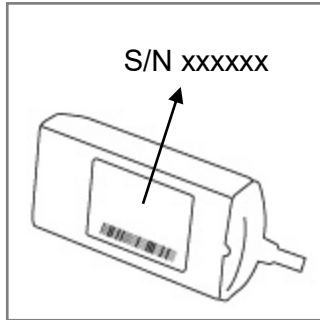
TU501-x / ME501-x

Version 4.0, April 2018

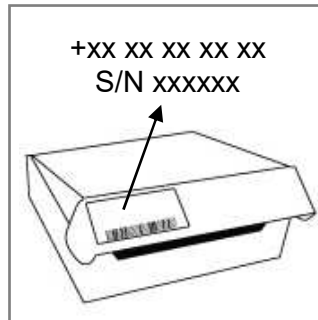


Practical advice:

1. Save important numbers

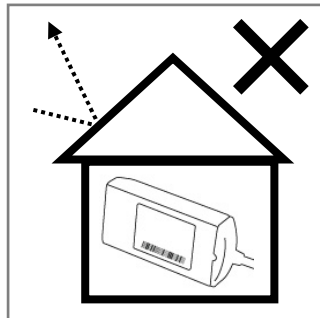


Serial number located on the unit

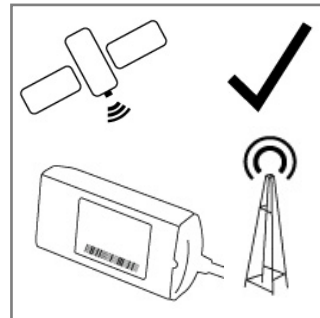


Cellular phone number and unit serial number is located on the box. Label can be peeled off and saved for later use.

2. Installation is best done outside

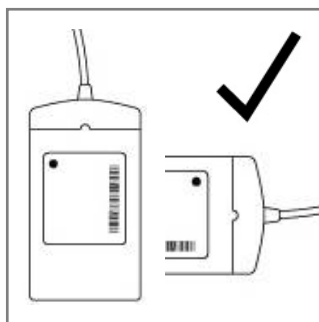


Do not perform installation inside a building

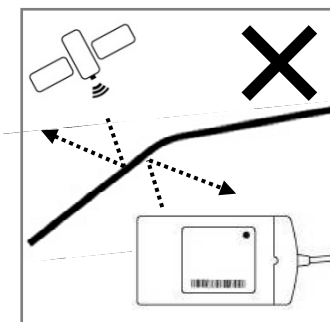


Install the unit outside for better GPS and GSM/UMTS signal

3. Correct location of the unit



Locate the unit as shown for optimal signal conditions



Avoid installing the unit directly under a layer of metal or next to wires.

Machine and vehicle guidelines for correct wiring

Wire color	Connection	Description
Red	Power	Mandatory connected to permanent 12/24Volt supply through a 1-5A fuse
Blue	Ground	Mandatory connected to ground
White	Digital input 1	Can be connected to hour counter Optional input ^A .
Brown	Digital input 2	Connect to the ignition signal ^A . Mandatory for vehicles and machines
Grey	Digital input 3	Optional input ^A .
Pink	Digital input 4	Can be used for INFILT function Optional input ^A .
Yellow	Digital output 1	Can be used to control a relay ^{B, C} .
Green	1-Wire input	Can be connected to a 1-wire temperature sensor.
Orange	CAN High	Connect to CAN High
Light blue	CAN Low	Connect to CAN Low

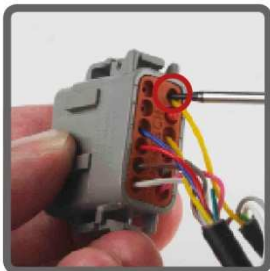
Connections			
NR 511			
6	1-Wire	CAN H	7
5	GND	CAN L	8
4	GND	OUT1	9
3	12/24V	12/24V	10
2	IN2	IN3	11
1	IN1	IN4	12

^A. Active/high when min.9,5V DC at input

^B. Max. Load 200 mA

^C. Do NOT use this output to switch off vehicles and machines during operation or driving

Connector assembly:



Step 1:
Push contacts into the connector grommet until it **CLICKS**.



Step 2:
Put the connector into back shell and use strips for fixation of wires.
Cut off unnecessary strip.

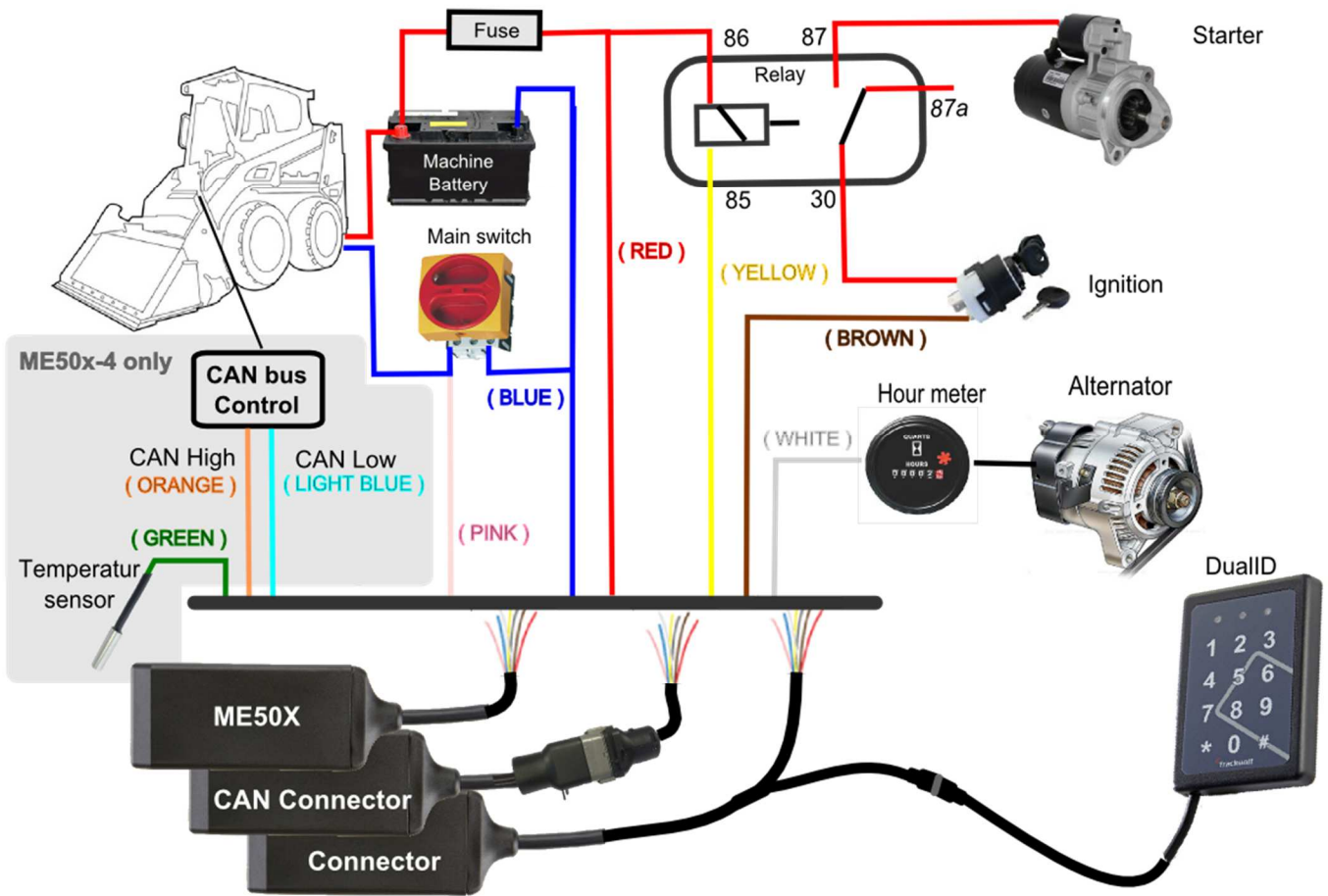


Step 3:
Close the connector back shell until it **CLICKS**.
Avoid squeezing wires.

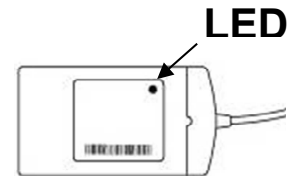


Step 4:
Insert orange wedge until it **CLICKS**.

Installation example




Functionality check: LED on the unit



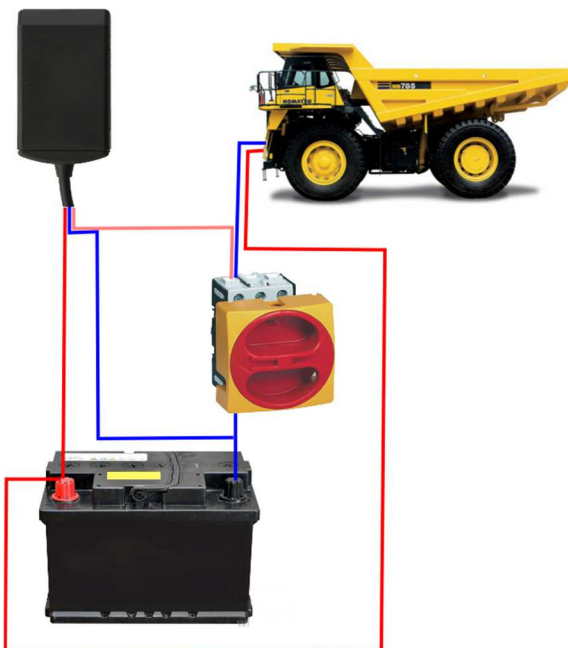
Status	LED mode	LED color	Status indication
✓	Red flashing light and constant green light in LED		- Mobile network is OK and GPS has valid satellite position
!	No light in LED		- No power supply
!	Constant red light and no green light in LED		- Power supply is OK but NO Mobile network - GPS has NO satellite position
!	Red flashing light and no green light in LED		- Mobile network is OK - GPS has NO satellite position
!	Constant red and green light in LED		- Power supply is OK but NO Mobile network - GPS has valid satellite position

Installation check and update using “Verify my Trackunit”

Action steps	
<div style="text-align: center;">  </div> <p>Step 1: Login</p> <ul style="list-style-type: none"> - Go to http://verify.trackunit.com - Enter user name and password <p>Step 2: Find unit</p> <ul style="list-style-type: none"> - Enter Serial Number and then click “Find” <p>Step 3: Review status</p> <ul style="list-style-type: none"> - Time of last received data - GPS and Mobile signal - Mobile number - Power supply voltage - Internal battery voltage - Status of inputs 1-4 (on/off) - Click “Find” again to refresh status 	<p>Step 4: Basic configuration options</p> <ul style="list-style-type: none"> - Enter a name for device - Enter engine hours - start - Enter Start distance - Select Category - Connect up to multiple groups - Add a note. Visible for the device in Trackunit Manager™ <p>Step 5: Logout</p> <ul style="list-style-type: none"> - Click “Update” to save - Click “Logout” <p>Note: <i>Prior to verification, make sure the Trackunit ME50X is installed and active in an area with sufficient GPS and Mobile coverage.</i></p>

Input filtering (INFILT)

INFILT installation



Case

- In case the main breaker is on the negative wire (Ground wire from the machine battery), the inputs may register a voltage level and start counting operating hours.
- To avoid this situation, the digital input 4 (Pink wire) should be connected to the chassis/ground on the machine
- Infilt function should be activated via “Verify my Trackunit”

Activation of input filtering

Go to: <http://verify.trackunit.com/>

Input Filtering: Current Status = OFF Click here to change

See „Verify my Trackunit” section

Note:

- *Enabling the filtering function will disable inputs 1 to 3 when input 4 is on/active, this can prevent all digital input alarms.*

NOTE:

Enabling the filtering function will disable the use of any alarm function on digital input 4.

CAN bus termination resistor

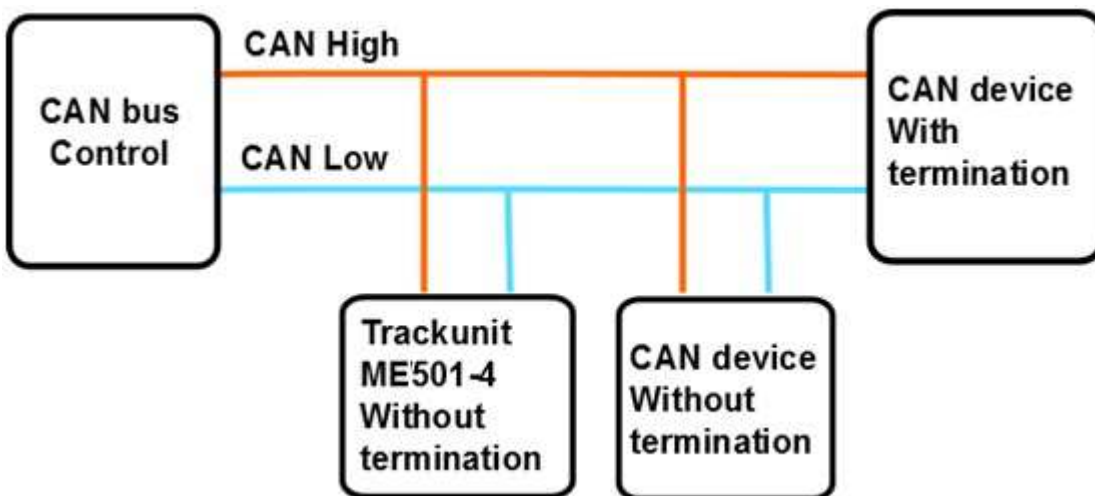
When installing the TU501-4/ME501-4 on a J1939 CAN bus, it is very important to determine if the installation is on a “private” CAN bus directly to the CAN controller, or if the TU501-4/ME501-4 is to be installed as a stub on a CAN bus with multiple CAN devices already attached.

The 120-ohm termination resistor is a permanently installed resistor, so make sure to use/select the correct TU501-4/ME501-4 CAN bus version.

I. With 120-ohm bus termination: (Direct connected)



II. Without bus termination: (Stub connected)



Note: When unit is stub connected, wire length must be minimized to avoid CAN-bus noise and error ratio.

Troubleshooting

Error description	Possible solutions
No reply on SMS command	<ul style="list-style-type: none"> • Verify correct GSM number • Check LED status – see page 3
No light in LED	<ul style="list-style-type: none"> • Check if red wire and blue wire are installed correctly or if fuse is blown
Constant red light in LED	<ul style="list-style-type: none"> • Verify location of the unit – see page 2 • Move machine or vehicle for better GSM signal
No green light in LED	<ul style="list-style-type: none"> • Verify location of the unit – see page 2 • Move machine or vehicle for better GPS reception
Inputs counting operating hours when machine is off	<ul style="list-style-type: none"> • In case the main breaker is on the negative wire (Ground wire from the machine battery). When off, the inputs may register a voltage level and start counting operating hours. • To avoid this situation, the digital input 4 (Pink wire) should be connected to the chassis/ground on the machine • See Input filtering (INFILT) section

Please contact your Trackunit dealer if problems continue. Please have the unit serial number ready.

Technical Assistance

If you have a problem and cannot find the information you need in the product documentation, please contact Trackunit A/S

Trackunit support: +45 96 73 74 00 E-mail: support@trackunit.com
 The guides can also be downloaded online: www.trackunit.com/downloads

NOTE: When contacting technical support, please have the unit serial number ready.

Product specifications

	ME501-9 / TU501-9 Standard	ME501-4 / TU501-4 Standard / CAN Connector	ME501-4 / TU501-4 Access Connector
2G GSM	Yes		
3G UMTS	Yes		
Operational voltage (supply voltage)	12-48 V DC		
Absolute maximum voltage range	8-58 V DC continuous		
Standby consumption (GSM-receiver active)	10 mA / 7 mA (avg. at 12V/24V)		
Consumption during charging on an empty	225 mA / 115 mA (max, at 12V/24V)		
Charging time for an empty	4 hours at 25 °C (77 °F)		
Digital inputs	4		
Digital outputs	1		
CAN inputs (High / Low)	0	2	2
Access control input M8 Connector	0	0	1

NOTE: Model names ME501-x or TU501-x are equally identical products.

Temperature Range

In active running mode*	-20°C to +55°C/60°C
Storage**	-40°C to +70°C

* Limited by the Li-Ion backup battery when the unit is either machinery or battery powered.

** Shorter battery lifetime must be expected when storage and operation occur at extreme temperatures.

Mechanical specifications

Length	106 mm (4.17 in.)
Width	45 mm (49 mm incl. cradle) (1.9 in.)
Height	18 mm (23 mm incl. cradle) (0.9 in.)
Cable length	170 cm (5.6 ft.)
Environmental class	IP67
Weight	65 g (excluding cable) (2.3 oz.)

Regulatory information and precautions

Use location

This equipment design applies to commercial or industrial equipment expected to be installed in locations where only adults are normally present

Terms of use

Use only Trackunit approved accessories and/or batteries. Do not connect incompatible products

New battery

In the case of battery malfunction, expiration or any other situation where a new battery might be needed. Replacement batteries can be ordered directly from Trackunit's homepage.

www.trackunit.com

or on the following e-mail.
support@trackunit.com

CE mark

The TU501 / ME501 products complies with the essential requirements of the RED Directive 2014/53/EU directive with respect to the EMC requirements, safety and radio spectrum matters.

FCC mark

The TU501 / ME501 products contains radio transmitters and complies with the essential requirements of Part 15, 22 and 24 of the FCC rules, and with RSS-GEN, RSS-132, RSS-133, RSS-210 and ICES-003 of the Industry Canada requirements

Environmental

The TU501 / ME501 products complies with the environmental conditions for rolling stock and transportation according to DIN EN 50125-1 and IEC 61373 / DIN EN 61373 with the IP67 classification including vibrations/drop according to SAE J1455 (heavy trucks).

Charging

The Battery will recharge as long as its temperature range is within 0°C to +45°C and the vehicle to which the unit is mounted is running. In case of temperatures outside this range the internal battery won't recharge.

Operating conditions

The internal Battery will operate in temperature ranges from -20°C to +60°C. In case of temperatures outside of this range the internal battery will be disabled by the device. Battery lifetime is expected to be 3 years under normal operating conditions

Long term storage /operating conditions

It is recommended to remove the battery during long term storage/continuous operation outside the temperatures specified in the operating conditions.

Fuse

Recommended fuse holders and fuses for installation up to 48V supply voltages (Can be ordered at Trackunit A/S):

- a. Supply voltage 12V/24V (Max 30A)
 - i. ATO blade fuses (Max 32V/1A) used with Littelfuse FHAC0002SXJ fuse holder (Standard).
 - ii. ATP blade fuse (Max 32V/1A - ATO style) used with TaiTek FH-006WR-12R-12-U fuse holder (Standard).
- b. Supply voltage 12V - 48V (Max 30A)
 - i. FKS blade fuse (Max 80V/3A - ATO style) used with Littelfuse FH2 fuse holder. (Recommended)

Machinery

The ME501/TU501 product complies with the essential requirements of the Directive 2003/37/EEC and Directive 2006/42/EEC supported by:

- I) EN 13309 Construction machinery
- II) ISO 13766 Earth-moving machinery
- III) EN/ISO 14982 Agricultural and forestry machines

and Automotive Directive 2004/104/EEC - UN regulative ECE R10 EMC rev. 4

Statements

FCC/IC part 15.19 Notice:

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IC RSS-GEN Notice:

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC part 15.21 Notice:

Changes or modifications made to this equipment not expressly approved by Trackunit may void the FCC authorization to operate this equipment.

FCC/IC Radiofrequency radiation exposure Information:

This equipment complies with FCC /IC radiation exposure limits set forth for an uncontrolled environment. This equipment may be installed and operated with minimum distance of 5 cm between the radiator and your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Environmental compliance:

IEC 61373,	EN/IEC 60068-2-1:2007	Cold
IEC 61373,	EN/IEC 60068-2-2:2007	Dry Heat
EN 50125-1,	EN/IEC 60068-2-27:2008	Shock
SAE J1455,	EN/IEC 60068-2-31:2008	Drop
EN 50125-1,		
SAE J1455,	EN/IEC 60068-2-64:2008	Random vibration
IEC 61373,	EN/IEC 60068-2-78:2001	Damp heat steady state
IEC 61373,	(IEC 60529+A1+A2)CSV:2013	Degrees of protection (IP code) ^B : IP67

NOTE A: The ME501/TU501 is not to be mounted in areas with presence of Motor oil, Gasoline, Diesel fuel, Hydraulic fluid, Brake fluid, Transmission fluid, Glycol and water mixture etc.

NOTE B: The housing not designed to withstand high pressure cleaning. Only use the ME501/TU5001 when mounted inside the designated Trackunit protection cap (Can be ordered at Trackunit A/S) in mounting areas where high pressure cleaning is common procedure.

Regulatory labeling:

The ME501 /TU501 product family are regulatory compliant to the following regulation:



10R - 04 7440



E4857

FCC-ID: ZMF-ME501
IC: 9746A-ME501